

REMARKS

The Office Action of July 27, 2006 has been reviewed and the comments therein were carefully considered. Claims 11-30 are currently pending. Claims 11-30 stand rejected. No new matter has been introduced into the application.

Claim Rejections Under 35 USC §103

Claims 11-30 are rejected under 35 USC §103(a) as being unpatentable over Salas, U.S. Patent No. 5,862,391 in view of Hershey, U.S. Patent No. 5,375,070 in further view of Friedman, U.S. Patent No. 5,757,924. Applicants respectfully traverse the rejections.

Independent claim 11 includes the claimed feature of “the adapter device comprising an interface circuit for transmitting a response message to the master device in response to the request message received on a preregistered TCP port selected from a plurality of TCP ports, the response message correlating to an output received from the slave device.” The Office Action attempts to equate the claimed adapter device of independent claim 11 to the Modbus concentrator of Salas. Applicants respectfully disagree as the Modbus concentrator described in Salas:

is generally a multiple channel data converter/multiplexer which translates data between two protocols for multiple metering and protective devices (i.e., between General Electric Co.s’ Commnet peer to peer network protocol and the industry standard Modbus RTU protocol.) The concentrator acts as a pseudo host for Commnet devices and as a pseudo slave for each device in the Modbus RTU network.

Column 5, lines 42-49.

The Modbus concentrator of Salas does not transmit a response message to the master device . . . on a preregistered TCP port selected from a plurality of TCP ports.” In fact, the Modbus concentrator provides an interface between Modbus RTU protocol and Commnet protocol (of General Electric Co.) and does not provide for communications using TCP/IP through a TCP port.

Moreover, the Modbus concentrator of Salas does not utilize Applicants' optimal protocol. Independent claim 11 includes the feature of "an optimal protocol utilized to communicate the request message and response message between the master device and the adapter device." The optimal protocol comprises an IP protocol, a TCP protocol, and an application layer protocol. Clearly, the Modbus concentrator of Salas does not utilize the claimed optimal protocol.

Furthermore, the Modbus concentrator of Salas does not disclose the claimed feature of "an adapter device directly attached to a body of the slave device . . . the adapter device configured to directly attach to an in-data port and an out-data port of the body of the slave device." (Emphasis Added). Support for Applicants' claimed feature may be found in at least Figure 1 which illustrates the COM-adapter 10 directly attached to the body of the I/O device body 2.

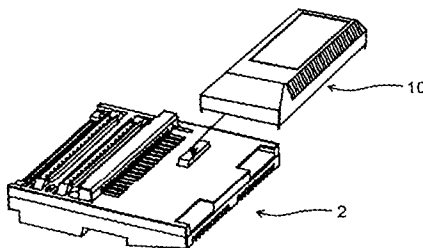


Fig. 1

In addition, Applicants' specification states:

Specifically, the communication adapter is configured to directly attach to and communicate through at least an in-data port, the out-data port, and the identification port of the input/output body.

(Specification Page 4, lines 1-3)

Furthermore, Applicants' specification states:

With referenced to FIGS. 1 and 3, the COM-adapter 10 is for providing an interface between a master device 12 and an I/O device (body) 14 having an output and/or input. In the case of the I/O device 12 having an output, the adapter 10 has a TCP port 16 for coupling to the master device 12 via a transmission path 18 for receiving a request message. The adapter 10 has a connector 20 for operable coupling to the I/O device 14 for receiving the output of the I/O device 14.

(Specification Page 6, lines 2-7)

As explained in Applicants' specification, this allows for quickly and easily connecting the input/output device to the network without-requiring special couplers or other devices to be implemented in the network. As explained in the application,

the invention allows inexpensive standard network components to be used in place of specialized real time field bus components in communicating with industrial sensor and actuator devices. This enables major savings in cost and complexity when connecting simple devices to a network solution involving programmable controllers or other industrial computer systems, since the same networking infrastructure components can be shared.

(Specification Page 4, lines 2-25).

The Office Action is equating the claimed "master device" with the computer (122, 142) of Salas, the claimed "slave device" with the power monitoring devices of Salas, and the claimed "adapter device" with the Modbus concentrator. However, the Modbus concentrator of Salas is not directly attached to a body of a power monitoring device.

Moreover, the Office Action states that Salas discloses "an Ethernet module wherein the control processing unit is directly attached to a factory automation unit (Fig. 2; Fig. 3; Col. 10, lines 15-67; and Col. 11, lines 1-18). Applicants have reviewed the cited section and respectfully submit that the cited sections do not disclose an Ethernet module directly attached to a factory automation unit. Applicants respectfully submit that Salas does not disclose the claimed feature of an adapter device directly attached to a body of the slave device.

Applicants respectfully submit that the Modbus concentrator and Ethernet gateway illustrated in Salas is not directly attached to the body of a slave device. In addition, Friedman does not make up for the deficiencies in Salas and Hershey. Therefore, Applicants respectfully submit that independent claim 11 is allowable for at least the above stated reason. Dependent claims 12-23 which ultimately depend from independent claim 11 are allowable for at least the same reason as independent claim 11.

Independent claim 24 includes the claimed feature of “a control processing unit operably coupled to the Ethernet controller and directly attached to a factory automation device.” (Emphasis added). Applicants respectfully submit that for the same reasons as discussed above with respect to independent claim 11, independent claim 24 is allowable over the Salas and Hershey.

In addition, the Office Action has failed to show an incentive or motivation in the prior art to make the combination of Salas with Hershey. The Office Action maintains:

The motivation to substitute the optimized MODBUS/TCP/IP stack of Salas with the finite state machine of Hershey is to provide an architecture and method for applying a real time feedback control to the logical or physical network behavior of a complex data communication network, (Hershey, Col. 3, lines 48-51). (Office Action, p. 4-5)

However, this object of Hershey fails to provide the required incentive to modify the system of Salas with features of Hershey. There is nothing in Salas, Hershey, or anywhere else in the prior art that suggests that a system such as the one disclosed in Salas is or would be concerned with "real time feedback control." Moreover, there is no evidence that the system of Salas, if modified as proposed by the Examiner, would continue to function for its intended purpose (i.e., to control and monitor power usage or consumption between multiple networks). In this regard, there is no evidence in the prior art that the state machine of Hershey would work or is easily adaptable to the multiple network environment of Salas. Accordingly, Applicants respectfully submit claim 24 is patentable over Salas in view of Hershey.

Dependent claims 25-30 which ultimately depend from independent claim 24 are allowable for at least the same reason as independent claim 24.

Applicants respectfully submit that all remaining pending claims are in condition for allowance. Should the Examiner believe that a conversation with Applicants' representative would be useful in the prosecution of this case, the Examiner is invited and encouraged to call Applicants' representative.

Respectfully submitted,

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